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V. Genualdo[1], A. Perucatti[1], A. Iannuzzi[1], A. Pauciullo[1], L. Pucciarelli[1], C. Iorio[1], D. Incarnato[1], M. Palazzo[2], D. Casamassima[2], L. Iannuzzi[1] (viviana.genualdo@ispaam.cnr.it)

[1]National Research Council (CNR), ISPAAM, Laboratory of Animal Cytogenetics and Gene Mapping, Naples, Italy; [2]Department of Agriculture, Environment and Food (AAA), University of Molise, Campobasso, Italy.

Phenylpropanoid glycosides (PPG), like other phenolic compounds, are powerful antioxidants. Beside phenolic compounds, verbascoside, shows the highest scavenger activity in the PPG and has high antioxidant power in comparison with other phenolic compounds. Cytogenetic studies by using *in vitro* exposure of blood lymphocytes to verbascoside reported a significant increasing of chromosome fragility compared to control. In the present study four homogeneous groups of rabbits (6 animals per group) were used to test *in vivo* the verbascoside by feeding the animals without Verbascoside and Licopene (*control – group A*), with lycopene (*5mg/Kg of feeding, group B*), with verbascoside (*5 mg/Kg of feeding, group C*) with verbascoside and lycopene (*5 mg/Kg of feeding each, group D*). Peripheral blood cultures were performed in three different times: at 0, 40 and 60 days of the experiment. Two types of cell cultures were performed: without (normal cultures) for the AC-test (chromosome and chromatid breaks) and with BrdU (10μg/ml), the latter added 26 h before harvesting, for the SCE-test. In the present study only data from SCE-test are presented. Mean number of SCEs were generally lower at both 40 and 60 days in groups B, C and D, compared with the same groups at zero day. In particular, they were statistically ($P<0.01$) lower at 40 and 60 days when using lycopene. In conclusion, on the basis of SCE-test applied on cells of rabbits treated *in vivo* with verbascoside or/and with lycopene, no chromosome fragility increasings were observed in cells of rabbit feed with verbascoside. However, a final conclusion will be done when data from AC-test will be available.